

Chapter 17: Evolution of Populations

State Standards

Central Concept: Evolution is the result of genetic changes that occur in constantly changing environments. Over many generations, changes in the genetic make-up of populations may affect biodiversity through speciation and extinction.

- 5.2 Describe species as reproductively distinct groups of organisms. Recognize that species are further classified into a hierarchical taxonomic system (kingdom, phylum, class, order, family, genus, species) based on morphological, behavioral, and molecular similarities. Describe the role that geographic isolation can play in speciation
- 5.3 Explain how evolution through natural selection can result in changes in biodiversity through the increase or decrease of genetic diversity within a population.

S1S1 Make observations, raise questions, and formulate hypotheses.

- Observe the world from a scientific perspective.
- Pose questions and form hypotheses based upon personal observations, scientific articles, experiments, and knowledge.

Key Terms

Gene	Stabilizing Selection	Speciation
Gene Pool	Disruptive Selection	Reproductive Isolation
Single-Gene Trait	Genetic Drift	Behavioral Isolation
Polygenic Trait	Bottleneck Effect	Geographic Isolation
Phenotype	Founder Effect	Temporal Isolation
Population	Sexual Selection	
Directional Selection	Species	

You should be able to:

1. Define evolution in genetic terms.
2. State what determines the number of phenotypes for a trait.
3. Explain how natural selection affects single-gene and polygenic traits.
4. Describe genetic drift and list the two examples of genetic drift.
5. Distinguish between directional, stabilizing, and disruptive selection for polygenic traits.
6. Identify the types of isolation that can lead to the formation of new species.
7. Describe the current hypothesis about Galapagos finch speciation.

You should know the difference between:

- Genetic Drift: Bottleneck Effect and Founder Effect
- Single-Gene Traits and Polygenic Traits
- Directional, Stabilizing, and Disruptive Selection
- Reproductive Isolation: Behavioral, Geographic, and Temporal Isolation

Chapter 17 Video Review

Crash Course – Speciation



Speciation: An Illustrated Introduction



Courtship Rituals – Birds of Paradise



The Sci Show – Why Sex?



Bozeman Biology - Speciation


